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EXAMINER	
BROOME, SAID A	

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2628	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/512,056	Applicant(s) ITO ET AL.	
	Examiner SAID BROOME	Art Unit 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _02 January 2008_.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-11 and 14-21_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-11 and 14-21_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _2/13/08_.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This office action is in response to an amendment filed on 1/2/2008.
2. Claims 1, 2, 10 and 14 have been amended by the applicant.
3. Claims 3-9, 11 and 15-21 are original.
4. Claims 12 and 13 have been cancelled.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osaka et al.(hereinafter "Osaka", US Patent 6,023,277).

Regarding claim 1, Osaka teaches a multimedia information generation apparatus for generating information including at least one two-dimensional image or character information and at least one three-dimensional image (col. 14 lines 16-24: "*FIG. 8 is...showing the configuration of a computer system...In this embodiment, a two-dimensional image and a three-dimensional (stereoscopic) image are switched between in...a display screen…*"), comprising:

a control information generation unit that generates control information for controlling display of said three-dimensional image (col. 1 lines 9-12: "*…a display control apparatus and method for controlling a stereoscopic display device which allows a user to observe a*

stereoscopic image…“), wherein said the control information includes the number of viewpoints for the three-dimensional image (col. 16 lines 22-25: “*…the information in the header is supplemented by data peculiar to a three-dimensional image, such as whether of not a three-dimensional image is to be displayed, the number of viewpoint images of the three-dimensional image…*“) and at least i) camera arrangement information for image pick-up (col. 2 lines 36-37: “*Parallax images captured from two or a number of directions are displayed…*“, *therefore though Osaka does not specifically recite a camera, it would have been commonly know in the art at the time the invention that a camera is an image capture device, in which the parallax images captured by Osaka would therefore be picked up by a commonly known camera from particular directions to provide parallax images, as known in the art*), ii) a direction of thinning during generation of said three-dimensional image from said two-dimensional image (col. 9 lines 20-24: “*Left and right parallax images are displayed on the liquid crystal display device 1 in a vertically alternating array of horizontal stripes…*“, *in which the direction of the thinning, or directional stripe orientation, is provided, as disclosed in applicant’s Specification in Fig. 4C*), iii) parallax amount shift limit information (col. 24 lines 35-38: “*…moving the lenticular sheet 40 from the state in which it is in intimate contact with the mask pattern…to a position spaced a prescribed distance…*“ and col. 3 lines 11-14: “*…a lenticular scheme is well known as means for displaying a stereoscopic image using the binocular parallax of the right and left eyes. In a lenticular system, a lenticular sheet comprising a number of semicylindrical lenses is provided in front of the display to spatially separate the image that enters the right and left eyes…*”, *wherein parallax images are moved by a defined parallax amount*), iv) parallax image switching pitch information (col. 13 lines 17-20: “*…the two parallax images composed of the right- and left-eye*

images are displayed in time-division fashion screen by screen, it is required that the frame frequency be made higher than 120 Hz…", *in which the rate at which the parallax images are cycled during stereoscopic display is provided, as disclosed in the applicant's Specification on pg. 20 lines 26-27*), iv) image arrangement of said two-dimensional images corresponding to parallax images (col. 9 lines 43-45: "*…the horizontal stripe-shaped left and right images displayed in vertically alternating form on the liquid crystal display…*"), and v) reversal information on each of said parallax images (col. 9 lines 61-65: "*…the pattern of apertures and light blocking portions of the mask pattern 209 is the reverse…the stripes of the right images among the horizontal stripe-shaped left and right images displayed in vertically alternating form…*"); and

a multimedia information generation unit generating said multimedia information including said at least one two-dimensional image or character information and at least one three-dimensional image and said control information (col. 14 lines 47-53: "*The display driver 6 comprises elements 7, 8, 9 and 10…An image painting unit 7 controls the painting of data actually painted on the stereoscopic display, namely a two-dimensional image handled heretofore and a three-dimensional image…*" and lines 57-63: "*A screen controller 9 generates paint signals and distributes these signals to the image paint unit 7…A host computer 11 is capable of handling two-dimensional images and three-dimensional images.*", *where the display driver 6 comprises a paint unit 7 that generates the two and three dimensional images and also a screen controller that controls the display of the three dimensional images*, col. 17 lines 41-47: "*…the screen controller 9 notifies the image painting unit 7 of the stereoscopic image data to be displayed, its display position and size…*"), wherein

said at least one two-dimensional image or character information and at least one three-dimensional image are data to be synthesized (col. 13 lines 50-52: "*…a method of presenting a mixed display of a three-dimensional image and a two-dimensional image…*").

Regarding claim 2, Osaka teaches a multimedia information generation apparatus (Fig. 8), for generating multimedia information comprised of a plurality of modules (Fig. 8: elements 1-12), comprising a module including at least one two-dimensional image or character information and at least one three-dimensional images (col. 14 lines 61-63: "*A host computer 11 is capable of handling two-dimensional images and three-dimensional images.*", *where the computer processes the image information, and transmits the information to the object analyzer*, Fig. 8), said module includes control information for controlling the display of the three-dimensional image (col. 17 lines 41-47: "*…the screen controller 9 controls the image painting unit 7 and the checkered mask-pattern painting unit 8 and causes a three-dimensional display to be presented at the position of the window of the stereoscopic display 12.*"), said control information includes the number of viewpoints for the three-dimensional image (col. 16 lines 22-25: "*…the information in the header is supplemented by data peculiar to a three-dimensional image, such as whether of not a three-dimensional image is to be displayed, the number of viewpoint images of the three-dimensional image…*") and at least i) camera arrangement information for image pick-up (col. 2 lines 36-37: "*Parallax images captured from two or a number of directions are displayed…*", *therefore though Osaka does not specifically recite a camera, it would have been commonly know in the art at the time the invention that a camera is an image capture device, in which the parallax images captured by Osaka would therefore be picked up by a commonly known camera from particular directions to provide parallax images,*

as known in the art), ii) a direction of thinning during generation of said three-dimensional image from said two-dimensional image (col. 9 lines 20-24: "*Left and right parallax images are displayed on the liquid crystal display device 1 in a vertically alternating array of horizontal stripes…*", *in which the direction of the thinning, or directional stripe orientation, is provided, as disclosed in applicant's Specification in Fig. 4C*), iii) parallax amount shift limit information (col. 24 lines 35-38: "…*moving the lenticular sheet 40 from the state in which it is in intimate contact with the mask pattern…to a position spaced a prescribed distance…*" and col. 3 lines 11-14: "…*a lenticular scheme is well known as means for displaying a stereoscopic image using the binocular parallax of the right and left eyes. In a lenticular system, a lenticular sheet comprising a number of semicylindrical lenses is provided in front of the display to spatially separate the image that enters the right and left eyes…*", *wherein parallax images are moved by a defined parallax amount*), iv) parallax image switching pitch information (col. 13 lines 17-20: "…*the two parallax images composed of the right- and left-eye images are displayed in time-division fashion screen by screen, it is required that the frame frequency be made higher than 120 Hz…*", *in which the rate at which the parallax images are cycled during stereoscopic display is provided, as disclosed in the applicant's Specification on pg. 20 lines 26-27*), iv) image arrangement of said two-dimensional images corresponding to parallax images (col. 9 lines 43-45: "…*the horizontal stripe-shaped left and right images displayed in vertically alternating form on the liquid crystal display…*"), and v) reversal information on each of said parallax images (col. 9 lines 61-65: "…*the pattern of apertures and light blocking portions of the mask pattern 209 is the reverse…the stripes of the right images among the horizontal stripe-shaped left and right images displayed in vertically alternating form…*"), and said at least one two-dimensional

image or character information and at least one three-dimensional image are data to be synthesized (col. 13 lines 50-52: "*…a method of presenting a mixed display of a three-dimensional image and a two-dimensional image…*").

Regarding claim 3, Osaka teaches control information is provided correspondingly to each three-dimensional image (col. 17 lines 41-47: "*…the screen controller 9 controls the image painting unit 7 and the checkered mask-pattern painting unit 8 and causes a three-dimensional display to be presented at the position of the window of the stereoscopic display 12.*").

Regarding claim 4, Osaka teaches that the control information is provided correspondingly to a plurality of three-dimensional images (col. 17 lines 41-47: "*…the screen controller 9 notifies the image painting unit 7 of the stereoscopic image data to be displayed…causing a stereoscopic image display to be presented in the above-mentioned window.*").

Regarding claim 5, Osaka teaches an identifier for identifying each of at least said two-dimensional image and said three-dimensional image is set in advance (col. 16 lines 11-21: "*A three-dimensional image file 50 according to this embodiment includes a file header 51…image format…described in the file header. The application analyzes the header, reads in the image data and causes the computer to paint the image.*", *where the file header identifies that images prior to generation of the stereoscopic images*, col. 17 lines 24-26: "*…it is determined, based upon the information in the file header 51, whether this window has three-dimensional image data.*"). Osaka also teaches that the control information includes the identifier of the three-dimensional image (col. 38 lines 5-11: "*…it is determined, based upon the information in the file header 51, whether this window has three-dimensional image data.*", *where the information used*

to control the display of the three-dimensional image is based on the identifier designating that the image is three-dimensional).

Regarding claim 6, Osaka teaches an identifier for identifying each of at least said two-dimensional image and said three-dimensional image is set in advance (col. 16 lines 11-21: "*A three-dimensional image file 50 according to this embodiment includes a file header 51…image format…described in the file header. The application analyzes the header, reads in the image data and causes the computer to paint the image.*", *where the file header identifies that images or prior to generation of the stereoscopic images*, col. 17 lines 24-26: "…*it is determined, based upon the information in the file header 51, whether this window has three-dimensional image data.*"). Osaka also teaches that the control information includes the identifier of the three-dimensional image (col. 38 lines 5-11: "…*it is determined, based upon the information in the file header 51, whether this window has three-dimensional image data.*", *where the information used to control the display of the three-dimensional image is based on the identifier designating that the image is three-dimensional*).

Regarding claim 7, Osaka teaches that the control information includes a plurality of identifiers (col. 16 lines 11-21: "*A three-dimensional image file 50 according to this embodiment includes a file header 51…image format…described in the file header. The application analyzes the header, reads in the image data and causes the computer to paint the image.*").

Regarding claim 8, Osaka teaches a predetermined value that indicates that the images are three-dimensional images (col. 38 lines 5-11: "…*it is determined, based upon the information in the file header 51, whether this window has three-dimensional image data.*",

where the file header contains a pre-designated file extension that indicates whether the image is three-dimensional).

Regarding claim 9, Osaka teaches a predetermined value that indicates that the images included in the modules are three-dimensional images (col. 38 lines 5-11: "*…it is determined, based upon the information in the file header 51, whether this window has three-dimensional image data.*", *where the images thereby included in the memory module, include a file header that contains a pre-designated file extension that indicates whether the image is three-dimensional*).

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osaka in view of Akamatsu et al.(hereinafter "Akamatsu", US Patent 6,313,866) in further view of Applicant's Admitted Prior Art ("AAPA") and in further view of Ellson et al.(hereinafter "Ellson", US Patent 5,805,783).

Regarding claim 10, Osaka teaches a multimedia information reproduction apparatus reproducing multimedia information including at least one two-dimensional image or character information and at least one three-dimensional images (col. 14 lines 16-24: "*FIG. 8 is…showing the configuration of a computer system…In this embodiment, a two-dimensional image and a three-dimensional (stereoscopic) image are switched between in…a display screen…*"), comprising:

a generation unit that generates a three-dimensional image from a two-dimensional image (col. 21 lines 51-53: "*The stereoscopic-image-data processing unit 306 combines a pair of left and right image data…*" and lines 58-61: "*The display control unit 303 receives stereoscopic-*

image data formed by the stereoscopic-image-data processing unit 306…and displays the received data…“). However, Osaka fails to teach a first synthesis unit that synthesizes a three-dimensional image generated by a generation unit and a three-dimensional image included in said multimedia information and generating the three-dimensional image from said character information includes thinning a horizontal resolution of the character information to 1/n when a number of viewpoints for the three-dimensional image is n, and then making a line forming a portion of three-dimensional image to have one of a horizontal dimension and vertical dimension that is bolder than that of a line representing a corresponding portion of the character information;

Akamatsu teaches a first synthesis unit that synthesizes a three-dimensional image generated by a generation unit and a three-dimensional image included in multimedia information (col. 5 lines 4-11: “*…a first image signal is input to an input terminal 11, while a second image signal is input to a second input terminal 12… The output terminal of the parallax control circuit 103 is connected to the three-dimensional image synthesizer 103.*“, *where the synthesis unit synthesizes two input three-dimensional images, therefore one of ordinary skill in the art at the time of invention would have been capable of inputting the three-dimensional images generated by Osaka and synthesize the images*). However, Osaka and Akamatsu fail to teach generating the three-dimensional image from said character information includes thinning a horizontal resolution of the character information to 1/n when a number of viewpoints for the three-dimensional image is n, and then making a line forming a portion of three-dimensional image to have one of a horizontal dimension and vertical dimension that is bolder than that of a line representing a corresponding portion of the character information;

AAPA teaches generating the three-dimensional image from said character information includes thinning a horizontal resolution of the character information to 1/n when a number of viewpoints for the three-dimensional image is n (applicant's Specification pg. 16 lines 5-8: "*…in FIG. 42B according to "parallax barrier scheme (or lenticular scheme)" as described above, the horizontal resolution of the image for left eye and the image for right eye each is half…*", *in which images generated from respective left and right viewpoints used for a three-dimensional lenticular parallax effect are thinned to a horizontal resolution half that of the image in which the division was derived, as known in the art*). However, Osaka, Akamatsu and AAPA fail to teach making a line forming a portion of three-dimensional image to have one of a horizontal dimension and vertical dimension that is bolder than that of a line representing a corresponding portion of the character information;

Ellson teaches making a line forming a portion of three-dimensional image (col. 5 lines 45-58: "*A geometric model font is a specific type of three-dimensional font which in accordance with the present invention is a collection of font text characters in which each character is described as a geometric model or object…Edge, line, wire frame, polygon and geometric surface representations can also be used.*") to have one of a horizontal dimension and vertical dimension (Fig. 3: 42 & 40, respectively) that is bolder than that of a line representing a corresponding portion of the character information (col. 1 lines 44-55: "*…text is more often rendered in three dimensions…The next level of extension of the text into three dimensions adds a thickness to all font characters…by the definition of a thickness, the data can converted into three dimensions.*", *where the thickness of the two-dimensional text is made thicker when it is converted to three-dimensional data, thereby maintaining the quality of the bolder text and*

improving visibility of the text after conversion). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the three-dimensional images of Osaka with the three-dimensional image synthesis of Akamatsu, reduced image resolution capabilities of AAPA and character image thinning techniques of Ellson because this modification would provide an improved stereoscopic environment that enables display of both three-dimensional and two-dimensional image simultaneously, wherein computationally efficient reduced resolution images are presented with accurate visual continuity through enabling certain portions of the image to be bolded during dimensional conversion to lessen any noticeable discontinuities that are potentially displayed as a result of the conversion.

Regarding claim 11, Osaka teaches a second synthesis unit that synthesizes a plurality of two-dimensional images or character information and generates three-dimensional image data from two-dimensional image data obtained through synthesis (col. 41 lines 40-44: "*…painting a synthesized image, obtained by alternately arraying at least two parallax images in the form of stripes, in the three-dimensional display zone…*").

Claims 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osaka in view of Iizuka in further view of Akamatsu, in further view of AAPA and in further view of Ellson.

Regarding claim 14, Osaka teaches a multimedia information reproduction apparatus reproducing multimedia information including at least one two-dimensional image or character information and at least one three-dimensional image ((col. 14 lines 16-24: "*FIG. 8 is…showing the configuration of a computer system…In this embodiment, a two-dimensional image and a*

three-dimensional (stereoscopic) image are switched between in...a display screen..."), comprising:

a 2D/3D conversion unit converting page image (Fig. 44: element 1033a) into a three-dimensional image (Fig. 45: element 1033a); and

a second synthesis unit that synthesizes a plurality of two-dimensional images (col. 41 lines 40-44: "*...painting a synthesized image, obtained by alternately arraying at least two parallax images in the form of stripes, in the three-dimensional display zone...*");

However, Osaka fails to teach a page data decoding unit decoding graphic and character information included in said multimedia information to obtain a page image, a first synthesis unit that synthesizes a three-dimensional image generated by a 2D/3D conversion unit and a three-dimensional image included in multimedia information and a first font image that displays character information three-dimensionally. Iizuka teaches a page data decoding unit decoding graphic and character information included in said multimedia information to obtain a page image (col. 21 lines 40-43: "*The image-file processing unit 304 reads various types of image files, analyzes the contents of the read file, decodes compressed data if necessary, and converts the data into image data having a predetermined standard format.*", *where the image data representing the two-dimensional left and right images is decoded, therefore it would have been obvious to one of ordinary skill in the art at the time of invention to decode any image data including 2D image page data presented in a 2D window, as shown by Osaka, Figs. 34 and 45*);

However, Osaka and Iizuka fail to teach a first synthesis unit that synthesizes a three-dimensional image generated by a 2D/3D conversion unit and a three-dimensional image included in multimedia information and a first font image that displays character information

three-dimensionally. Akamatsu teaches a first synthesis unit that synthesizes a three-dimensional image generated by a 2D/3D conversion unit and a three-dimensional image included in said multimedia information (col. 5 lines 4-11: "*…a first image signal is input to an input terminal 11, while a second image signal is input to a second input terminal 12… The output terminal of the parallax control circuit 103 is connected to the three-dimensional image synthesizer 103.*", *where the synthesis unit synthesizes two three-dimensional images, therefore one of ordinary skill in the art would be capable of inputting the three-dimensional images as taught Osaka, and synthesize the two three dimensional images*);

a first font image corresponding to character information (col. 3 lines 38-41: "*…image signal specifically indicates a stereoscopically displayed character…*");

said first font image is used when the character is three-dimensionally displayed (col. 6 lines 30-38: "*…a stereoscopic image corresponding to the second image signal is displayed in front. In the FIG. 8 … a character…are appearing as stereoscopic images…*");

However, Osaka, Iizuka and Akamatsu fail to teach thinning a horizontal resolution of the two-dimensional data to 1/n when a number of viewpoints for the three-dimensional image is n, and a line forming a portion of said second font image has one of a horizontal dimensional and vertical dimension that is thinner than that of a line representing a corresponding portion of said first font image, and a second font image corresponding to character information that is used when the character is two-dimensionally displayed;

AAPA teaches thinning a horizontal resolution of the two-dimensional data to 1/n when a number of viewpoints for the three-dimensional image is n, and a line forming a portion of said second font image has one of a horizontal dimensional and vertical dimension that is thinner than

that of a line representing a corresponding portion of said first font image (applicant's Specification pg. 16 lines 5-8: "*…in FIG. 42B according to "parallax barrier scheme (or lenticular scheme)" as described above, the horizontal resolution of the image for left eye and the image for right eye each is half…*", *in which images generated from respective left and right viewpoints used for a three-dimensional lenticular parallax effect are thinned to a horizontal resolution half that of the image in which the division was derived, as known in the art, therefore characters within the corresponding image are thinned to a halfved resolution*). However, Osaka, Iizuka, Akamatsu and AAPA fail to teach and a line forming a portion of said second font image has one of a horizontal dimensional and vertical dimension that is thinner than that of a line representing a corresponding portion of said first font image and a second font image corresponding to character information that is used when the character is two-dimensionally displayed;

Ellson teaches making a line forming a portion of three-dimensional image (col. 5 lines 45-58: "*A geometric model font is a specific type of three-dimensional font which in accordance with the present invention is a collection of font text characters in which each character is described as a geometric model or object…Edge, line, wire frame, polygon and geometric surface representations can also be used.*") to have one of a horizontal dimension and vertical dimension (Fig. 3: 42 & 40, respectively) that is bolder than that of a line representing a corresponding portion of the character information (col. 1 lines 44-55: "*…text is more often rendered in three dimensions…The next level of extension of the text into three dimensions adds a thickness to all font characters…by the definition of a thickness, the data can converted into three dimensions.*", *where the thickness of the two-dimensional text is made thicker when it is*

converted to three-dimensional data, thereby maintaining the quality of the bolder text and improving visibility of the text after conversion); and

a second font image corresponding to character information that is used when the character is two-dimensionally displayed (col. 1 lines 44-55: "*…text is more often rendered in three dimensions…The next level of extension of the text into three dimensions adds a thickness to all font characters…by the definition of a thickness, the data can converted into three dimensions.*"). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the three-dimensional images of Osaka, with the page data of Iizuka, three-dimensional image synthesis of Akamatsu, reduced parallax image resolution of AAPA and bolded character technique of Ellson because this modification would provide realistic two-dimensional window images represented in three dimensions stereoscopically where computationally efficient reduced resolution images are presented with accurate visual continuity through enabling certain portions of the image to be bolded during dimensional conversion to reduce any noticeable discontinuities that are potentially displayed as a result of the conversion, thereby enabling accurate depth perception of any two-dimensional window or page data in a three-dimensional environment.

Regarding claim 15, Osaka fails to teach the limitations. Iizuka teaches decoding multimedia information, or image files, to obtain image data (col. 21 lines 40-43: "*The image-file processing unit 304 reads various types of image files, analyzes the contents of the read file, decodes compressed data if necessary, and converts the data into image data having a predetermined standard format.*"), where the image data representing the two-dimensional left and right images is decoded, therefore it would have been obvious for one of ordinary skill in the

art at the time of invention to decode various types of image data known in the art, including 2D window data as illustrated by Osaka (Fig. 45: element 1033a), in order to utilize the data for further stereoscopic image processing. The motivation to combine the teachings of Osaka, Iizuka, Akamatsu and Ellson is equivalent to the motivation of claim 14.

Regarding claim 16, Osaka illustrates a 2D/3D conversion that converts 2D image data (Fig. 44: element 1033a) into a three-dimensional image (Fig. 45: element 1033a), therefore the system disclosed by Osaka (Fig. 28) contains one or more computer processing components that perform the equivalent functionality of a synthesis unit that synthesizes 2D font or character data and converts the data into three-dimensional, or stereoscopic image data, for display.

Regarding claims 17 and 20, Osaka teaches storing a first font image, or three-dimensional image and a second font image, or two-dimensionally displayed image (col. 16 lines 11-15: "*…image file 50…includes…three-dimensional image data…and two-dimensional image data…*"). Osaka also teaches switching between the first and second font image (col. 12 lines 6-8: "*…it is possible to switch between a two-dimensional display and a three-dimensional display…*").

Regarding claim 18 and 21, Osaka teaches converting a second font image, or two-dimensional image, in to a first font image, or a three-dimensional image (col. 13 lines 50-52: "*…a method of presenting a mixed display of a three-dimensional image and a two-dimensional image…*").

Regarding claim 19, Osaka teaches that the first font image, or three-dimensional image which was generated through synthesis of the two-dimensional images, comprise a plurality of pieces of light/dark information and arranged so that apparent charter thickness is thin (col. 27

lines 62-65: "*…the number of parallax images) reduces the aperture efficiency of the parallax barrier pattern, resulting in a darker observed image.*", Figs. 24A, 24B, 51A-51C and 52A, *where the character thickness is presented thin so the pieces may be synthesized for stereoscopic viewing*).

Response to Arguments

Applicant's arguments with respect to claims 1-11 and 14-21 have been considered but are moot in view of the new ground(s) of rejection.

The applicant argues on pg. 10 3rd ¶ lines 1-4 of the remarks that the language of amended claims 10 and 14, as amended, is read in light of the specification as is required, an artisan would readily understand the metes and bounds of the invention, therefore the 35 U.S.C. 112, second paragraph rejection has been withdrawn.

The applicant also argues on pg. 11 2nd ¶ lines 1-6 of the remarks that Osaka fails to disclose that the control information includes the number of viewpoints for the three-dimensional image, camera arrangement information for image pick-up, a direction of thinning during generation of said three-dimensional image from the two-dimensional image, parallax amount shift limit information, parallax image switching pitch information, image arrangement of said two-dimensional images corresponding to parallax images, and reversal information on each of the parallax images. However, Osaka clearly teaches control information that includes the number of viewpoints for the three-dimensional image (col. 16 lines 22-25: "*…the information in the header is supplemented by data peculiar to a three-dimensional image, such as whether of not a three-dimensional image is to be displayed, the number of viewpoint images of the three-*

dimensional image…") and at least i) camera arrangement information for image pick-up (col. 2 lines 36-37: "*Parallax images captured from two or a number of directions are displayed…*", *therefore though Osaka does not specifically recite a camera, it would have been commonly know in the art at the time the invention that a camera is an image capture device, in which the parallax images captured by Osaka would therefore be picked up by a commonly known camera from particular directions to provide parallax images, as known in the art*), ii) a direction of thinning during generation of said three-dimensional image from said two-dimensional image (col. 9 lines 20-24: "*Left and right parallax images are displayed on the liquid crystal display device 1 in a vertically alternating array of horizontal stripes…*", *in which the direction of the thinning, or directional stripe orientation, is provided, as disclosed in applicant's Specification in Fig. 4C*), iii) parallax amount shift limit information (col. 24 lines 35-38: "*…moving the lenticular sheet 40 from the state in which it is in intimate contact with the mask pattern…to a position spaced a prescribed distance…*" and col. 3 lines 11-14: "*…a lenticular scheme is well known as means for displaying a stereoscopic image using the binocular parallax of the right and left eyes. In a lenticular system, a lenticular sheet comprising a number of semicylindrical lenses is provided in front of the display to spatially separate the image that enters the right and left eyes…*", *wherein parallax images are moved by a defined parallax amount*), iv) parallax image switching pitch information (col. 13 lines 17-20: "*…the two parallax images composed of the right- and left-eye images are displayed in time-division fashion screen by screen, it is required that the frame frequency be made higher than 120 Hz…*", *in which the rate at which the parallax images are cycled during stereoscopic display is provided, as disclosed in the applicant's Specification on pg. 20 lines 26-27*), iv) image arrangement of said two-dimensional

images corresponding to parallax images (col. 9 lines 43-45: "*…the horizontal stripe-shaped left and right images displayed in vertically alternating form on the liquid crystal display…*"), and v) reversal information on each of said parallax images (col. 9 lines 61-65: "*…the pattern of apertures and light blocking portions of the mask pattern 209 is the reverse…the stripes of the right images among the horizontal stripe-shaped left and right images displayed in vertically alternating form…*").

The applicant also argues on pg. 12 1st ¶ lines 1-3 and 4th ¶ lines 1-4 of the remarks that Osaka, Akamatsu and Ellson fail to teach generating the three-dimensional image from the character information includes thinning a horizontal resolution of the character information 1/n when a number of viewpoints for the three-dimensional image is n. However, AAPA teaches generating the three-dimensional image from said character information includes thinning a horizontal resolution of the character information to 1/n when a number of viewpoints for the three-dimensional image is n (applicant's Specification pg. 16 lines 5-8: "*…in FIG. 42B according to "parallax barrier scheme (or lenticular scheme)" as described above, the horizontal resolution of the image for left eye and the image for right eye each is half...*", *in which images generated from respective left and right viewpoints used for a three-dimensional lenticular parallax effect are thinned to a horizontal resolution half that of the image in which the division was derived, as known in the art*).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Said Broome whose telephone number is (571)272-2931. The examiner can normally be reached on M-F 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571)272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Said Broome/
Examiner, Art Unit 2628

/Ulka Chauhan/
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